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REMARKS

The present application relates to hybrid maize plant and seed 34N16. Claims 1-32 are currently pending in the present application. Applicant respectfully requests consideration of the following remarks.

Detailed Action

A. Claim Objections

Applicant acknowledges that the amendments of July 29, 2002 have overcome all outstanding rejections under 35 U.S.C. § 112, except as indicated below.

B. Claims

Applicant acknowledges the addition of new claims 33 through 42. The new claims do not add new matter as there is literal support for the claims in the originally filed specification (pages 37-48, specification).

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 5-8, 10-19, 21 and 23-32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 12, 16, 25 and 29, and dependent claims 13-15, 17-19, 26-28, and 30-32 are rejected as indefinite in their recitation of "plant according to claim 2 [or 20] further comprises...transgenes [or genes transferred by backcrossing]". The Examiner continues that the dependent claims fail to further limit the claims from which they depend.

Applicant respectfully traverses this rejection. Applicant asserts the specification supplies an extensive definition and description of 'transgene' and transgenes of interest. (See generally pages 42-48 for an extensive list of potential transgenes.) Applicant directs the Examiner's attention to the argument infra, under § 112, first paragraph. Applicant also notes, a person having skill in the art could insert a DNA gene into a selected maize plant. Applicant has defined transgenes in the present application in the paragraph that spans pages 37-38. In addition, Applicant has amended claims 11, 15, 19, 24, 28 and 32 by adding the threshold, having 50% of the alleles, as well as an assayable function, capable of expressing at least a combination of two traits of 34N16. There is literal support for the amended claims found in the

specification on page 3 and beginning on page 37 of the instant specification. Applicant has also amended claims 16 and 29 to read "further comprises".

In addition, as provided in 37 C.F.R. §§ 1.801-1.809, Applicant wishes to reiterate they will refrain from deposit of Hybrid 34N16 until allowable subject matter is indicated. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, a description of the deposited biological material sufficient to specifically identify it and to permit examination and the name and address of the depository. At that time, Applicant submits that claims 12, 16, 25, and 29 and those claims dependent thereon will be definite. Further, Applicant asserts that u[pon deposit the written description requirement set forth in 35 U.S.C. § 112 will be met, particularly in light of the fact that, that Applicant will have reduced the invention to practice and described the invention by virtue of the deposit in combination with the knowledge of a breeder of ordinary skill in the art, thereby demonstrating its "possession" of the invention. Enzo Biochem Inc., v. Gen-Probe, Inc., 63 U.S.P.Q.2d (BNA) 1609, 1613 (Fed. Cir. 2002) ("In light of the history of biological deposits for patent purposes, the goals of the patent law, and the practical difficulties of describing unique biological materials in a written description, we hold that reference in the specification to a deposit in a public depository, which makes its contents accessible to the public when it is not otherwise available in written form, constitutes an adequate description of the deposited material sufficient to comply with the written description requirement of § 112, 1."); see also MPEP § 2163.02 (8th ed. Aug. 2001) ("Under Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 U.S.P.Q.2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed.") In Enzo, the Federal Circuit Court remanded the case to the District Court and stated that "on remand the court should determine whether a person of skill in the art would glean from the written description, including information obtainable from the deposits of the claimed sequences, subsequences, mutated variants, and mixtures sufficient to demonstrate possession of the generic scope of claims." Enzo Biochem Inc., v. Gen-Probe, Inc., 63 U.S.P.Q.2d (BNA) 1609, 1615 (Fed. Cir. 2002). Furthermore, it would be well understood to one skilled in the pertinent art that the claim language "further comprises" would teach the addition of a foreign protein allowing for the altering of traits in a specific manner (see page 37).

In view of forthcoming deposits and the arguments supra, Applicant therefore respectfully submits that this language is not indefinite and would be understood by one in the art and is the terminology of use within the art. Therefore, Applicant respectfully requests reconsideration.

Claims 11, 15, 19, 24, 28, and 32 remain indefinite in their recitation of "high", "above average", "stronger", "very good" and "suited" as these terms are unduly narrative and imprecise, and do not clearly set forth the degree of expression of the claimed characteristics or clearly characterize the corn plants exhibiting them.

Applicant respectfully traverses this rejection. Each of these claims recites two requirements, first that 34N16 be an ancestor of the plant and second, that the claimed plant be "capable of expressing a combination of at least two 34N16 traits" selected from a Markush grouping. Applicant notes that the Markush listing is directed to "34N16" traits. Thus, Applicant submits that the recitation of 34N16 traits clearly delineates the traits listed as those which are from 34N16 or ancestors thereof. The recitation of "34N16" in front of the term traits clearly indicates that the traits must be originating from 34N16. This is particularly so since the claim also requires that the plant 34N16 must be an ancestor of the claimed plant. Applicant further submits that the adjectives used within the claims are not indefinite as they do clearly characterize and positively recite the degree of expression of the particular traits within the application in Tables 1-4 (pages 18-36). This terminology is well known in the art and commonly used within breeding techniques of hybrid plants.

In addition, Applicant has amended claims 11, 15, 19, 24, 28 and 32 by adding the threshold, having 50% of the alleles, as well as an assayable function, capable of expressing at least a combination of two traits of 34N16. There is literal support for the amended claims found in the specification on page 3 and beginning on page 37 of the instant specification. Further, Applicant has now deleted the areas of adaptability therefore alleviating the rejection to the term "suited". Applicant therefore respectfully submits that this language is not indefinite and would be understood by one in the art and is the terminology of use within the art. Therefore, Applicant respectfully requests reconsideration.

Furthermore, in Georgia-Pacific, the Federal Circuit stated that "...the policy of the patent statute contemplates granting protection to valid inventions, and this policy will be defeated if protection were to be accorded to those patents which were capable of precise definition." Georgia-Pacific Corp. v. U.S. Plywood Corp., 258 F.2d 124, 136, 118 U.S.P.Q. 122 (2nd Cir.).

While some decisions have advocated the general statement that "[a]n invention must be capable of accurate definition, and it must be accurately defined, to be patentable, (See United Carbon Co. v. Binney & Smith Co., 1942, 317 U.S. 228, 237, 63 S.Ct. 165, 170, 87 L.Ed. 232), the Federal Court has stated that "such general statements, however, must be viewed in the context of circumstances. Objectionable indefiniteness must be determined by the facts in each case, not by reference to an abstract rule." Georgia-Pacific at 136. "Patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and Applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision. If the claims read in light of the specification, reasonably apprise those skills in the art both in utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Id. (See North American Vaccine Inc. v. American Cyanamide Co., 7 F.3d 1571, 28 U.S.P.Q.2d 1333, 1339 (Fed. Cir. 1993)). Moreover, it is against the policy of the patent statute to bar patent protection for inventions that are incapable of precise definition. Georgia-Pacific at 136. With respect to the above-mentioned terms, the claims are as precise as the subject matter of the invention permits. Therefore, Applicant respectfully requests reconsideration of the claims.

Claims 10, 14, 18, 23, 27 and 31, and dependents, remain indefinite in their recitation of [t]he maize plant breeding program of claim 9 [or 13 or 17 or 22 or 26 or 30]", which is confusing, since the previous claims are drawn to methods rather than breeding programs. Applicant has now have amended the claims in accordance to Examiner's suggestion by changing the recitation "maize plant breeding program" in line 1 of claims 10, 14, 18, 23, 27 and 31 with --method--, thus alleviating this rejection.

Claims 8 and 21 remain indefinite for characterizing the male fertile plant of claim 2 [or claim 20] as male sterile. Applicant has now amended claims 8 and 21 to read --further comprises a genetic factor conferring male sterility--, and added new claims 41-42, as suggested by the Examiner, thereby alleviating this rejection. Support can be found on page 13 of the specification, wherein it states "[i]t should be understood that the inbred can, through routine manipulation of cytoplasmic or other factors, be produced in male-sterile form. Such embodiments are also contemplated within the scope of the present claims."

In light of the above remarks, Applicant submits that claims 5-8, 10-19, 21 and 23-32 clearly define and distinctly claim the subject matter Applicant regards as the invention.

Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 8-19 and 21-32 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner asserts that claims 12, 15, 25, 28, and dependents thereon, are broadly drawn to any transgenic plant which contains any heterologous transgene of any sequence conferring any trait, and methods of using the transgenic plants. The Examiner further states that claims 8, 16, 19, 21, 29, 32, and dependents thereon, are broadly drawn to any "single gene conversion" plant comprising one or more traits introgressed into the claimed variety by backcrossing or other traditional means, and methods of using these plants. The Examiner states claims 9-11, 13-15, 17-19, 22-24, 26-28 and 30-32 are also broadly drawn to any plant produced by crossing the exemplified hybrid line with any of a multitude of non-exemplified plants, or any descendant of the exemplified cultivar obtained by using that cultivar as one parent in a series of undisclosed crosses for an undisclosed number of generations and with undisclosed breeding partners. The Examiner states that there is no guidance for the description, characterization, or isolation of a multitude of heterologous coding sequences conferring a multitude of traits. The Examiner also states that there is no guidance regarding the genetic or morphological characteristics of any of a multitude of breeding partners, or the resultant progeny. Given the claim breadth and lack of guidance, the Examiner states the specification fails to provide an adequate written description of the genus as broadly claimed.

Applicant respectfully traverses this rejection. Applicant asserts the specification supplies an extensive definition and description of 'transgene' and transgenes of interest. (See generally pages 42-48 for an extensive list of potential transgenes.) Applicant also notes, a person having skill in the art could insert a DNA gene into a selected maize plant. Applicant has defined transgenes in the present application in the paragraph that spans pages 37-38 as follows:

> With the advent of molecular biological techniques that have allowed the isolation and characterization of genes that encode specific protein products,

> scientists in the field of plant biology developed a strong interest in *engineering the genome of plants to contain and express foreign genes, or additional genes* (perhaps driven by different promoters) in order to alter the traits of a plant in a specific manner. *Such foreign, additional and/or modified genes are referred to herein collectively as "transgenes".* Over the last fifteen to twenty years several methods for producing transgenic plants have been developed, and *the present invention, in particular embodiments, also relates to transgenic versions of the claimed hybrid 34N16.*

(emphasis added) The present application clearly describes and defines a transgene to be a gene transferred into a plant wherein the product of that gene is expressed. This expression will confer a new or improved trait into that plant. However, this gene is but a tiny fraction of the entire genome. In other words, the plant of claim 12 is distinguishable from the prior art plants just as is hybrid 34N16 without the transgenes. Further, the plant of claim 12 also contains a trait(s) that is either improved or additional to the traits of the maize plant of claim 2. The 34N16-transgene plant still expresses the unique combination of traits of 34N16 without the transgenes with the exception of the traits expressed by the transgenes. The trivial modifications introduced by the transgenes to the unique invention of 34N16 are clearly supported and described in the present application. In addition, Applicant respectfully submits that "[t]he test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. . . . If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more. . . . The degree of precision necessary for adequate claims is a function of the nature of the subject matter." Miles Laboratories, Inc. v. Shandon Inc., 997 F.2d 870 (Fed. Cir. 1993).

Furthermore, Applicant has now amended claims 11, 15, 19, 24, 28 and 32 by adding the threshold, having 50% of the alleles, that limits the variation permitted among the genus, as well as an assayable function, capable of expressing at least a combination of two traits of 34N16. There is literal support for the amended claims found in the specification on page 3 and beginning on page 37 of the instant specification. Plant breeding techniques known in the art and used in the maize plant breeding program include, but are not limited to the following: recurrent selection backcrossing, pedigree breeding, restriction length polymorphism enhanced selection, genetic marker enhanced selection and transformation. With the amendments to the above-stated claims, Applicant has identified a transgenic 34N16 plant (claim 12), a 34N16 plant further comprising genes transferred by backcrossing (claim 14), or a maize plant wherein at least one

ancestor is maize variety 34N16 (claim 15) by defining a particular threshold that limits variation and reciting a functional test to identify such plants. In addition, Applicant has drafted new claims 33-42 which Applicant believes come within the purview of the written description requirement and do not add new matter. Under the written description requirement, Applicant should be allowed to claim the progeny of a cross of maize plants crossed with 34N16 with phenotypic characteristics since distinguishing identifying characteristics in the chemical and biotechnological arts, dealing with DNA, are those such as: partial structure, physical and/or chemical properties, functional characteristics, known or disclosed correlation between structure and function, method of making, and combinations of the above. In plants, these identifying characteristics are those detectable in the phenotype which are manifested through gene expression. Claims to a particular species of invention are adequately described if the disclosure of relevant identifying characteristics are present in the application. Again, one of ordinary skill in the art is reasonably apprised in knowing that a plant crossed with 34N16 will result in a plant having half of the genetic contribution of 34N16. A further limitation set by Applicant is that the plants must be capable of expressing a combination of at least two phenotypic characteristics of 34N16.

The Examiner also asserts that Hunsperger et al., Kraft et al., and Eshed et al. teach that it is unpredictable whether the gene or genes responsible for conferring a phenotype in one plant genotypic background may be introgressed into the genetic background of a different plant, to confer a desired phenotype is said different plant.

Applicant respectfully traverses these rejections. Applicant respectfully submits that Hunsperger et al. does not teach what the Examiner proposes in column 3, lines 26-46. On the contrary, Hunsperger et al. teaches that the allelic DNA genetic factor that results in dwarfism of a petunia plant as disclosed has been incorporated into other genetic backgrounds of the petunia species. (See column 2, line 67 to column 3, lines 1-4). Therefore, the Examiner has not shown that the introgression of a gene in one genetic background in any plant of the same species, as performed by sexual hybridization is unpredictable. Besides, Applicant's disclosure is sufficiently enabling because the specification describes transformation of hybrid maize 34N16 starting on page 37. The advent of molecular biology techniques have allowed isolation and characterization of genes that encode specific proteins. On page 42, third paragraph, Applicant discloses that for a transgenic plant, which shows high levels of expression, a genetic map can be

generated to identify approximate chromosomal locations of integrated DNA. Such methods are incorporated by reference. Thus, Applicant provides a sufficient enabling disclosure for those skilled in the art to generate the 34N16 plant with a transgene. Applicant may create genetic maps to identify the integrated DNA, which would assist in determining introgression. Furthermore, on page 42 of the instant specification, Applicant discloses that plants can be genetically engineered to express various phenotypes of agronomic interests. Such change indicated or those which confer resistance to pests or disease, resistance to herbicides (page 45) or genes to confer value-added traits (page 46). Applicant then discloses on page 47 methods for 34N16 transformation. Moreover, on page 48, following transformation of the 34N16 plant, target tissue expression of the selectable marker genes as described in the specification allow the preferential selection of transformed cells, tissues, and/or plants using regeneration and selection methods, which are well-known in the art. Such predictability refers to the ability of one skilled in the art to extrapolate the disclosed or known results of the claimed invention. Applicant's disclosure enables one skilled in the art following transformation to preferentially select the transformed cells using selectable markers. Applicant respectfully requests Examiner to withdraw this rejection.

The Examiner also asserts Kraft et al. teach, for example, that linkage disequilibrium effects and linkage drag prevent the making of plants comprising a single gene conversion, and that such effects are unpredictably genotype specific and loci-dependent in nature, that linkage disequilibrium is created in breeding materials when several lines become fixed for a given set of breeding materials, and therefore it is an unpredictable effect in plant breeding, on page 323 of the reference, column 1, lines 7-15.

Again, Applicant respectfully submits that Kraft et al. does not stand for the proposition for what the Examiner is asserting. The Examiner states "that very little is typically known about the plant breeding materials, and therefore it is an unpredictable effect in plant breeding (page 323, column 1, line 7 to line 15)." This section is taken from Kraft et al. at page 323 column 2, lines 5-8, but Kraft et al. is merely stating that "very little is known about the distances spanned by linkage disequilibria in breeding materials", not little is known about plant breeding materials. Kraft et al. simply teaches that they found an increase in linkage disequilibrium for tightly linked markers in sugar beets (see page 324, column 2, lines 2-15). Further, the reference teaches that mapped position of markers are not useful for discerning distances between two lines where the

levels of linkage disequilibrium is low, particularly in well-defined heterotic groups (see page 326, column 1, lines 1-11).

Finally, as provided in 37 C.F.R. §§ 1.801-1.809, Applicant wishes to reiterate they will refrain from deposit of Hybrid 34N16 until allowable subject matter is indicated. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, a description of the deposited biological material sufficient to specifically identify it and to permit examination and the name and address of the depository. The claims (1, 5 and 7) will also be amended to recite the ATCC deposit number. In addition, Applicant submits that at least 2,500 seeds of Variety 34N16 will be deposited with the ATCC. Therefore, Applicant asserts the written description requirement set forth in 35 U.S.C. § 112 will then be met, particularly in light of the fact that Applicant will have reduced the invention to practice and deposited the derived biological materials in a public depository, thereby demonstrating its "possession" of the invention. Enzo Biochem Inc., v. Gen-Probe, Inc., 63 U.S.P.Q.2d (BNA) 1609, 1613 (Fed. Cir. 2002) ("In light of the history of biological deposits for patent purposes, the goals of the patent law, and the practical difficulties of describing unique biological materials in a written description, we hold that reference in the specification to a deposit in a public depository, which makes its contents accessible to the public when it is not otherwise available in written form, constitutes an adequate description of the deposited material sufficient to comply with the written description requirement of § 112, 1."); see also MPEP § 2163.02 (8th ed. Aug. 2001) ("Under Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 U.S.P.Q.2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed.") In view of this assurance, the rejection under 35 U.S.C. § 112, first paragraph, should be removed (MPEP § 2411.02). Such action is respectfully requested.

In light of the above remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 8-19 and 21-32 under 35 U.S.C. § 112, first paragraph.

Issues Under 35 U.S.C. § 102/103

The Examiner rejects claims 11, 15, 19, 24, 28, and 32 remain rejected under 35 U.S.C.

§ 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Cummings et al. (U.S. Patent 5,977,455).

Applicant respectfully traverses this rejection and requests reconsideration of 11, 15, 19, 24, 28, and 32. The Applicant would like to point out that the inventions Hybrid 34N16 and Inbred Corn Plant WKBC5 are not the same inventions. Nor are their differences minor morphological variations. Applicant submits that the claimed plant cannot be rendered obvious as it possesses a unique combination of traits which confers a unique combination of genetics. Moreover, Applicant claims a method of making a plant which did not previously exist. Pursuant to the recent Federal Circuit decision, Elan Pharmaceuticals, Inc. v. Mayo Foundation for Medical Education & Research, 304 F.3d 1221, (Fed. Cir. 2002), "a novel patented product is not "anticipated" if it did not previously exist." Id. This is the case whether or not the process for making the new product is generally known. Id. The invention 34N16 has not previously existed as it is the result of crossing two maize inbred lines GE568102 and GE534776.

Furthermore, when looking at the tables of both inventions, hybrids created using 34N16 as one of the parents are clearly not anticipated by hybrids made using WKBC5 as one of the parents. The inventions 34N16 and WKBC5 differ for various traits that are not minor. For example, 34N16 has a relative maturity based on the Comparative Relative Maturity Rating System as reported in Table 1, of 109 (page 16). As reported in Table 1 of 5,977,455 Patent, WKBC5 does not teach a relative maturity of the hybrid or inbred seed. Another example, 34N16 has Anthocyanin-pigmented brace roots when compared with WKBC5. As reported in Table 1, 34N16 has very dark Anthocyanin- pigmented brace roots (page 18). As reported in Table 3 of 5,977,455 Patent, WKBC5 is absent in Anthocyanin-pigmented brace roots. Another example, as reported in Table 1, 34N16 demonstrates a pink anther color (page 18). As reported in Table 3 of the 5,977,455 Patent, WKBC5 has an anther color of green-yellow. A third example of the differences is that 34N16 exhibits a different silk color as compared to inbred WKBC5. As reported in Table 1, 34N16 has a silk color of red. As reported in Table 3, WKBC5 has a silk color of green-yellow.

The aforementioned examples all illustrate that there are large differences between 34N16 and WKBC5. The examples listed are not exhaustive but they do give ample evidence that the inventions are not the same. Furthermore, when looking at the tables of both inventions, hybrids

created using 34N16 as one of the parents are clearly not anticipated by hybrids made using WKBC5 as one of the parents.

Applicant further submits that the claims do not simply recite traits, but instead recites these specific traits only to the extent that they are "34N16" traits; thereby being derived from the seed/germplasm of 34N16. Note, variety with respect to agricultural variety, can be defined as a group of similar plants that by structural features and performance can be identified from other varieties within the same species. When looking at maize plants it would be possible for one ordinarily skilled in the art to find many traits that are similar between varieties such as the disease resistance or growth habit. Nonetheless, the claim also recites that the claimed plant must have 34N16 as an ancestor further indicating that these traits must originate from the 34N16 plant not WKBC5. In response to the Examiner's contention that one could not distinguish the claimed plant from the prior art which shows each of these traits, Applicant submits that one can easily tell by reference to the plants breeding history, which can be confirmed by its molecular profile whether the plant did indeed have plant 34N16 as an ancestor and expressed two or more "34N16" traits. Further, any phenotypic trait that is expressed is a result of a combination of all of the genetic material present in the plant, and 34N16 will have its own unique genetic background that will give rise to the claimed plant and this profile along with its combination with other plants will result in a unique combined genetic profile that is the product claimed.

Furthermore, there is no expectation of success that the crossing of the Hybrid WKBC5 with some yet to be identified plant would yield a plant with two of the traits enumerated in the claimed invention and at least 50% of its alleles from 34N16 because that particular plant did not begin with the claimed seed 34N16 which is essential. Applicant asserts that it is not the phenotypic characteristics alone that are claimed and taught in the instant invention. It is a combination of physiological and morphological characteristics, as claimed, which make the present Hybrid non-obvious and not anticipated over Cummings et al. '455. Further, In re Thorpe, states that "a product by process claim may be properly rejected over prior art teaching the same product produced by a different process", as noted by the Examiner. In re Thorpe, 227 U.S.P.Q. 964, 966 (Fed. Cir. 1985). However, Applicant submits that this is not the same product physiologically or morphologically as the cited prior art as can be evidenced by one skilled in the art through analysis of the data tables in each. In addition, it is impermissible to use

hindsight reconstruction and the benefit of Applicant's disclosure to pick among pieces which are present in the art, there must be some suggestion to make the combination and an expectation of success. In re Vaeck, 20 U.S.P.Q.2d 1434 (Fed. Cir. 1991). Further, any phenotypic trait that is expressed is the result of the genetic material present in the plant, and 34N16 will have its own unique genetic background that will give rise to the claimed plant and this profile along with its combination with other plants will result in a unique combined genetic profile that is the product claimed. Thus, the present application deserves to be considered new and non-obvious compositions in their own right as products of crossing when 34N16 is used as a starting material.

In light of the above, Applicant respectfully requests the Examiner reconsider and withdraw the rejection to claims 11, 15, 19, 24, 28, and 32 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Cummings et al. (U.S. Patent 5,977,455).

Issues Under 35 U.S.C. § 103

Claims 11, 15, 19, 24, 28, and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cummings et al. (U.S. Patent 5,977,455).

Applicant respectfully traverses this rejection. When looking at a maize plant it would be possible to find many traits that are similar between varieties such as the color of flowers or growth habit. However, to say there are similarities in phenotype between two varieties is not the same as saying that the two varieties have the same morphological and physiological characteristics as a whole, or that one is an obvious variant of the other. Further, similarity in phenotype does not mean that the two varieties will perform similarly, particularly in a breeding program. As stated above, variety with respect to agricultural variety may be defined as a group of similar plants that by structural features and performance can be identified from other varieties within the same species.

Applicant submits that Inbred Corn Plant WKBC5 does not exhibit the same characteristics as 34N16. Applicant will illustrate how 34N16 and WKBC5 are different. Cummings et al. '455 does not teach or suggest hybrid maize plant 34N16 developed by a maize breeding program or the use of hybrid maize plant 34N16 in the production of tissue culture. It must be recognized that the hybrids and inbreds provided by this invention are themselves

unusual and unobvious results of a common process (see pages 18-36, specification). Nonetheless, Hybrid 34N16 deserves to be considered as a new and non-obvious composition in its own right as does its tissue culture as products of the process when 34N16 is used as starting material. Applicant points out that 34N16 is a unique plant hybrid which never before existed until Applicant filed the application and until its deposit of the same. While Cummings et al. '455 does teach the general regeneration of maize plants from tissue culture techniques, it does not teach or suggest the use of the unique maize hybrid 34N16. As will be demonstrated below, several morphological and physiological characteristics of Hybrid 34N16 are either different from or not present in WKBC5.

For example, Hybrid 34N16 has a relative maturity based on the Comparative Relative Maturity Rating System of 109. The varieties are also different with respect to Anthocyanin-pigmented brace roots, anther color, silk color and disease resistance. Differences between the two varieties are summarized in the table below:

CHARACTERISTICS	34N16	Inbred WKBC5
Comparative Relative Maturity Rating System	109	No teaching
Anthocyanin- pigmented brace roots	Very Dark	Absent
Anther Color	Pink	Green-yellow
Silk Color	Red	Green-yellow
Disease Resistance	Average Resistance to Gray Leaf Spot (5) and Fusarium Ear and Kernel Rot (5)	No teaching for Disease Resistance

This comparison clearly shows that WKBC5 does not exhibit the characteristics of hybrid 34N16. Further, the present application clearly shows in Table 1 at pages 18-20 and Tables 2-4 at pages 23-36 that hybrid 34N16 exhibits lower growing degree units to silk emergence, average resistance to Common Rust and Corn Lethal Necrosis, Staygreen of 6 and the aforementioned characteristics.

In light of the above, Applicant respectfully requests the Examiner reconsider and withdraw the rejection to claims 11, 15, 19, 24, 28, and 32 under 35 U.S.C. § 103(a).

Applicant acknowledges that claims 1-7 and 20 are allowed. Applicant further acknowledges that claims 1-10, 12-14, 16-18, 20-23, 25-27 and 29-31 are free of the prior art, given the failure of the prior art to teach or suggest the particularly claimed maize plants with their unique complement of genotypic and morphological characteristics, or methods of using them. This clearly indicates that the hybrid 34N16 as a whole is considered distinguishable from the prior art for the purposes of novelty and non-obviousness. In light of the above, Applicant respectfully submits the above rejections are clearly improper and request reconsideration and withdrawal of the rejections.

Conclusion

In conclusion, Applicant submits in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested.

No additional fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Reconsideration and allowance is respectfully requested.

Respectfully submitted,

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Attorneys of Record

Application No. 09/760,324

AMENDMENT — VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Please amend claims 6, 8, 10-11, 14-15, 18-19, 21, 23-24, 27-28 and 31-32 as follows:

6. (Twice Amended)

[A] The tissue culture according to claim 5, the cells or protoplasts [of the tissue culture being] of said cells having been isolated from a tissue selected from the group consisting of leaves, pollen, embryos, roots, root tips, anthers, silks, flowers, kernels, ears, cobs, husks, and stalks.

8. (Twice Amended)

The maize plant of claim 2[,] wherein said maize plant further [comprising] comprises a genetic factor conferring male sterility.

10. (Amended)

The [maize plant breeding program] method of claim 9 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

11. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 2, wherein said maize plant has derived at least 50% of its alleles from 34N16 [said maize plant] and is capable of expressing a combination of at least two 34N16 traits selected from the group consisting of: high yield potential, with stable yields across yield levels, above average root strength, very good stay green, very good drought tolerance, above average early growth, above average test weight, very good dry down, [stronger performance in the

Eastern United States, suited to Central corn Belt regions of the United States,] and a relative maturity of approximately 109 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

14. (Amended)

The [maize plant breeding program] method of claim 13 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

15. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 21, wherein said maize plant has derived at least 50% of its alleles from 34N16 [said maize plant] and is capable of expressing a combination of at least two 34N16 traits selected from the group consisting of: high yield potential, with stable yields across yield levels, above average root strength, very good stay green, very good drought tolerance, above average early growth, above average test weight, very good dry down, [stronger performance in the Eastern United States, suited to Central corn Belt regions of the United States,] and a relative maturity of approximately 109 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

18. (Amended)

The [maize plant breeding program] method of claim 17 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

19. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 16, wherein said maize plant has derived at least 50% of its alleles

from 34N16 [said maize plant] and is capable of expressing a combination of at least two 34N16 traits selected from the group consisting of: high yield potential, with stable yields across yield levels, above average root strength, very good stay green, very good drought tolerance, above average early growth, above average test weight, very good dry down, [stronger performance in the Eastern United States, suited to Central corn Belt regions of the United States,] and a relative maturity of approximately 109 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

21. (Twice Amended)

The maize plant of claim 20[,] wherein said maize plant further [comprising] comprises a genetic factor conferring male sterility.

23. (Amended)

The [maize plant breeding program] method of claim 22 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

24. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 24, wherein said maize plant has derived at least 50% of its alleles from 34N16 [said maize plant] and is capable of expressing a combination of at least two 34N16 traits selected from the group consisting of: high yield potential, with stable yields across yield levels, above average root strength, very good stay green, very good drought tolerance, above average early growth, above average test weight, very good dry down, [stronger performance in the Eastern United States, suited to Central corn Belt regions of the United States,] and a relative maturity of approximately 109 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

27. (Amended)

The [maize plant breeding program] method of claim 26 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

28. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 25, wherein said maize plant has derived at least 50% of its alleles from 34N16 [said maize plant] and is capable of expressing a combination of at least two 34N16 traits selected from the group consisting of: high yield potential, with stable yields across yield levels, above average root strength, very good stay green, very good drought tolerance, above average early growth, above average test weight, very good dry down, [stronger performance in the Eastern United States, suited to Central corn Belt regions of the United States,] and a relative maturity of approximately 109 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

31. (Amended)

The [maize plant breeding program] method of claim 30 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

32. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 29, wherein said maize plant has derived at least 50% of its alleles from 34N16 [said maize plant] and is capable of expressing a combination of at least two 34N16 traits selected from the group consisting of: high yield potential, with stable yields across yield levels, above average root strength, very good stay green, very good drought tolerance, above average early growth, above average test weight, very good dry down, [stronger performance in

the Eastern United States, suited to Central corn Belt regions of the United States,] and a relative maturity of approximately 109 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

Please add new claims 33 – 42 as follows:

33. (New)

A method of making a hybrid maize plant designated 34N16 comprising:

crossing an inbred maize plant GE568102, deposited as _____ with a second inbred maize plant GE534776, deposited as _____; and

developing from the cross a hybrid maize plant representative seed of which having been deposited under ATCC Accession Number _____.

34. (New)

A method of making an inbred maize plant comprising:

obtaining the plant of claim 2 and

applying double haploid methods to obtain a plant that is homozygous at essentially every locus, said plant having received all of its alleles from maize hybrid plant 34N16.

35. (New)

A method for producing an 34N16 progeny maize plant comprising:

(a) growing the plant of claim 2, and obtaining self or sib pollinated seed therefrom; and

(b) producing successive filial generations to obtain a 34N16 progeny maize plant.

36. (New)

A maize plant produced by the method of claim 35, said maize plant having received all of its alleles from hybrid maize plant 34N16.

37. (New)

A method for producing a population of 34N16 progeny maize plants comprising:

(a) obtaining a first generation progeny maize seed produced by crossing the maize plant of claim 2 with a second maize plant;

(b) growing said first generation progeny maize seed to produce F_1 generation maize plants and obtaining self-pollinated seed from said F_1 generation maize plants; and

(c) repeating the steps of growing and harvesting successive filial generations to obtain a population of 34N16 progeny maize plants.

38. (New)

The population of 34N16 progeny maize plants produced by the method of claim 37, said population, on average, deriving at least 50% of its alleles from 34N16.

39. (New)

A 34N16 maize plant selected from the population of 34N16 progeny maize plants produced by the method of claim 37, said maize plant deriving at least 50% of its alleles from 34N16.

40. (New)

The method of claim 37, further comprising applying double haploid methods to said F_1 generation maize plant or to a successive filial generation thereof.

41. (New)

A method of producing a male sterile maize plant comprising transforming the maize plant of claim 2 with a genetic factor conferring male sterility.

42. (New)

The method of claim 41 wherein a male sterile maize plant is produced.